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ABSTRACT

At the center of the critical thinking movement is a far-reaching attempt at educational reform which sees critical thinking as a compelling educational ideal supported by moral concerns and practical considerations. This paper examines the theoretical basis for critical thinking and explores its component parts. The context of the discussion is a program of postsecondary educational reform that includes the renewal of teacher education as a central objective. Postmodernism and liberal education are discussed and related to critical thinking. standards; (3) teacher education issues specific to core subject countries to look closely at educational reform through critical thinking to determine its appropriateness to their own cultural and social context. It advances the argument that critical thinking offers an overarching framework for education that supports social, political, and ethical development, without requiring limiting concepts that inhibit tailoring education in appropriate context-specific ways. Critical thinking requires that students comprehend the rational basis upon which warranted authority rests, including the authority of expert points of and "Will Current Reforms Contribute to the Changes Needed?" Two wide range of judgments that they may be called to make as fully participating members of society. Replacing authority of source with critical judgment may be a particular problem in education that seeks to support development by utilizing practices imported from developed countries to developing countries. (IAH)

MONTCLAIR STATE

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Educating for Development: Critical Thinking Across the Disciplines

Mark Weinstein

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Educating for Development: Critical Thinking Across the Disciplines

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Increasing awareness of, and respect for, diversity, both within and among societies, has an ethical and political corollary. Diversity reflects difference in perspectives, and all perspectives must be considered as potentially relevant for determining the future of the planet and its various sub-systems, for that future impinges on us all. This requires that people of all classes in every society have an intelligent appreciation of the problems facing humankind, and be empowered to recommend and evaluate possible strategies for their solution.

This raises the issues of development. Intellectual appreciation and empowerment to recommend and evaluate reflect people's capacities: both the resources they may draw upon as members of a community, and what they bring to that community as individuals with a particular history of interaction. Such capacities reflect human needs and, as we shall see, are involved with human rights. But, as capacities, they are essentially generative. Needs speak to what must already be in place to function, rights to the atemporal conditions surrounding functioning; capacities speak to possibilities, to functionality, to further actions and doings, to increase and generation. (For the recent discussion of capacities, needs and rights within the context of development, see Aman, 1991).

The capacities just mentioned are traditionally, and plausibly, engaged with through education. Intellectual competence and practical wisdom are among the most venerable of education's goals. Education incorporates the culturally embedded transmission of language and value, and specialized, and often technical, cross-cultural knowledge reflecting inquiry-based understanding. Both of these aspects of education are essential to development. The former speaks to the accumulated wisdom and self-understanding of groups of people. It sets the framework within which development will be understood, and generates the values and perceptions that must be accommodated, if development is to be owned by a people. The latter, speaks to the special understanding that the rigor and sophistication- the intensity of purpose- that disciplinary knowledge affords.

If education in the name of these capacities is to be generally available, the task to develop these capacities must fall to mass education- the institution responsible for furnishing much of the knowledge of the world that is made accessible to most of the people on the planet. This prompts

the reconceptualization of the social role of education and a reconsideration of practices appropriate to mass education.

Such an far reaching attempt at educational reform is at the center of the critical thinking movement, increasingly influential in the United States and elsewhere. At the heart of the movement is the sense that critical thinking is a deeply compelling educational ideal. The ideal is supported by both moral concerns and practical considerations. As important, it has been articulated in a fashion that permits it to be readily differentiable within the various contexts of its application, and across the special disciplines through which education is structured.

In what follows, we will examine the theoretic basis for critical thinking, and explore its component parts. The context for our discussion will be a program of post-secondary educational reform, that includes the renewal of teacher education as a central objective. Before we can begin, however, we must address a problem that calls into question the appropriateness of seeing models drawn from developed countries as generally available to societies of all sorts.

Exporting ideals and practices from developed to developing countries is all too common, and appropriately viewed with suspicion. This is especially true of educational exports, for education is deeply rooted in the cultures and perceptions of the society within which it occurs. The particularity of educational practices reflects profound differences in societies, differences that include images of the good life, social and political structures, ethical and religious beliefs, economic needs, and the practical requirements of available occupations. Thus, transplanting educational practices from developed to developing countries prompts concern with the relevance of the transplanted practices to the masses of people in the developing country and raises issues of cultural imperialism. Education has, all too often, served as an instrument of political and economic domination-reflecting the needs and purposes of developed countries, and orchestrating the awareness and loyalties of small groups within developing countries in order to sustain unequal relationships.

The concerns enumerated above, notwithstanding, educational practices developed in the United States may seem appealing as models for practice elsewhere. Educational theory and practice in the U. S. reflects a deep and long-standing ideological commitment to universal education as the basis of a politically competent citizenry and an educated workforce. U.S. education is relatively free of religious and political control, and increasingly reflects the diversity of the country's multi-ethnic population. It includes a rich research base, and reflects a history of innovation and carefully monitored change. Finally, U.S. education has been supported by the economic and social resources available in one of the richest societies in world history.

These positive aspects should not lull educators elsewhere into the uncritical acceptance of U.S. models. Rather, such models must be carefully

scrutinized. U.S. models can only be recommended for application in other contexts if they offer theoretically, ethically, and politically warranted frameworks that permit differentiation adequate to the needs of the societies that contemplate employing such frameworks in the context of their own culture and social needs. This paper is, thus, an attempt to persuade educators in developing countries to look closely at educational reform through critical thinking. My contention is that critical thinking, as analyzed in what follows, offers an overarching framework for education that supports social, political and ethical development, without requiring limiting concepts that inhibit the particularization of education in a manner appropriate to the specific contexts of its application.

The availability of critical thinking as a foundation for education can be warranted in terms of a number of plausible desiderata for any frame of reference seen as supporting an analysis and critique of available educational practices. First, the framework must be theoretically supportable and relevant to practice. Second, it must address the variety of cultures, and the recent critique of enlightenment universalism that awareness of cultural variety can be seen to support. Third, it should furnish some relatively objective standpoint, a standpoint that can be warranted by considerations not limited to particular cultural contexts. Finally, it should support the normative stance that reflects the most progressive ethical ideals relevant to education today. As we shall see, it is arguable that critical thinking satisfies these desiderata. In addition, it reflects back on the notion of an objective standpoint, reconstituting the notion in a manner that addresses the insights that underlie the postmodern critique of enlightenment universalism.

What the critical thinking movement points to, albeit in nascent form, is a synthesis of a number of perspectives that speaks directly to educational theory and practice. What the synthesis yields is a theory drawn from a number of places, as well as recommendations for practice based on the articulation of an educational apparatus and model programs that reflect a range of experiences drawn from successful implementation of critical thinking programs in schools. What follows includes the beginnings of such a theory. The assessment of recent attempts to implement such a theory in educational practice must be left for another occasion.

My discussion will be limited to the context of post-secondary education. That should not be taken as evidence for the inappropriateness of critical thinking to education in primary and secondary schools. In fact, critical thinking has had its greatest impact in just such contexts.[1] Neither should it be taken as a sign of my indifference to education in the workplace or community. Education, in the sense most relevant for development, embraces far more than post-secondary education. Encompassing formal education at all levels, education for development is most plausibly construed to include the widest range of less formal educational endeavors as well. Schooling in factories and farms, community based literacy and health programs, programs in libraries and museums, exhibitions, concerts

and village festivals, media, and and the needs of public life, all may serve to educate particular segments of the population, or to address particular educational needs.

My focus on post-secondary education is warranted by three considerations. First, it is the context in which I work. I teach both graduate and undergraduate courses in a teacher education program, and am engaged in an extensive program in post-secondary faculty development that seeks to engage faculty from all disciplines in the cause of educational reform through critical thinking. Second, it reflects my perception that post-secondary education is an essential locus for broad and effective educational reform. Post-secondary educators produce the most adequately educated citizens, the new generations of leaders in politics, industry and the military. They enjoy far more freedom from social and political control than do their colleagues in the schools. And most importantly, they teach those who will be the teachers across the wide range of contexts within which education is afforded. The reform of post-secondary education is intimately related to the renewal of teacher education (Goodlad, 1990). If the needs of the schools are to be met, post-secondary education must address the demands of broad understanding and compelling engagement. Colleges cannot sustain the educational needs of a people by fostering exclusivity. The needs of specialized and technical understanding cannot replace the university's mission to educate those who will participate most fully across the range of political, social and economic roles and decisions. The requirements of justice demand that fuller participation devolve upon an ever-increasing segment of the population. And so the university must reach out to all those who would be educated, whether directly or indirectly, through its offices.

Third, post-secondary education affords a context that is both rich enough to enable the major components of critical thinking to be described, yet is limited enough to circumscribe the discussion in the interest of coherence. As we shall see critical thinking must be seen within the context of postmodernism, and the anti-foundationalism that would call into question any attempt to furnish an over-arching normative framework for rational justification. What I will attempt to show is that critical thinking affords a perspective that can accommodate the postmodern intuition, while affording a stance from which reasonable judgments can be made. This is most easily seen when postmodernism is reflecting by the variety of academic disciplines, rather than by the far deeper and more perplexing myriad of cultures.

I will characterize the critical thinking movement in terms of two major components: the justification of the movement as an educational ideal by Harvey Siegel (Siegel, 1988), and an analysis of the conception offered by Matthew Lipman (Lipman 1988). These will enable us to bring in the work of others in the movement as needed, and more importantly, will give us a framework for seeing the extent of the movement and the plausibility of its basic concepts. What I will do with each of these components is offer an

interpretation based on my own practice in recent years. Both Siegel and Lipman anchor the concept of critical thinking across the disciplines that has been the source of an experiment in faculty development at Montclair State College, where I help direct the Institute for Critical Thinking.[2]

1. Critical thinking in context.

The concept of critical thinking across the disciplines is at home in the instructional milieu of undergraduate education in the United States. Colleges there are generally committed to the goals of liberal education, in some form or other. They offer students a wide range of courses in a general education curriculum that ranges broadly across the academic disciplines, and require little more than beginner's competence in areas of specialization that are non-terminal for a field. General education and the lack of emphasis on early specialization is itself a result of progressive trends in U.S. education, which have extended liberal education from the education of a privileged few to most of the college population. Little is known of the success of either the limited or the expanded enterprise, for it is hard to know what success could mean in the variety of contexts within which liberal education has been attempted. Nevertheless, introducing students to their cultural heritage and to the range of academic disciplines, at whatever degree of sophistication, serves to furnish students with a broad foundation for their later learning and their participation in society. Liberal education, in this sense, has been among the most venerable goals of education, whether in secondary schools and gymnasia in more restrictive social contexts, or in undergraduate education in more egalitarian settings.

Liberal education has been seen as an essential ingredient in education adequate for preparing citizens for full social, political, and economic participation. This can be warranted in light of the realization that many of the crucial issues confronting citizens are complex and multi-faceted. Understanding such issues, thus, requires multiple perspectives, and information drawn from a variety of sources. Such "multi-logical" issues[3] require the integration of the many disciplines that students study in general education courses. This, in turn, requires that students be competent to access information of all sorts, and assess the strengths and limitations of the results and practices of particular disciplines as they are seen relevant to the points at issue. Disciplinary knowledge, if to be effectively employed in response to "real-world" issues must, in addition, be related to individual and social values, to cultural understanding, and to social, economic and political realities. Helping students to perform such tasks is at the heart of critical thinking across the disciplines.

The diversity of the academic disciplines represented in the curriculum of U.S. colleges and universities raises the issue of postmodernism. For if modernism includes the thesis that a unified theoretic frame will become increasingly available as a support for inquiries of all sorts, and postmodernism is typified by the rejection of the claim to such an underlying unity and an emphasis on the divergence of foundational and

methodological elements, increasingly apparent as inquiry progresses, the modern university is clearly postmodern. The various disciplines and the educational practices that they support exhibit a wide variety of practices and standpoints. Postmodern perceptions have been reinforced by the rejection of positivism, and by the increasing availability of theoretic analyses that identify divergent, even where complementary, epistemological norms and methodological procedures across the academic disciplines.

Postmodernism becomes increasingly relevant in the face of the interaction between the disciplines that the program in general education entails. Even if differences can be overlooked within particular disciplines concerned with introducing students to their own characteristic practices, general education presents students with a seemingly incoherent range of practices and concepts whose relation is poorly understood, and rarely discussed.[4]

Critical thinking at Montclair State College can, thus, be seen to exist within the de facto postmodernism of the modern university. Unlike other members of the university community, for whom the insularity of disciplinary perspectives and internal disciplinary ambitions keeps the postmodern dilemma in the background, critical thinking advocates address the members of all disciplines and so must confront postmodernism directly. This is a consequence of the depth and breadth of critical thinking taken as an educational ideal. Critical thinking seen as an educational ideal, must speak generally, if it is to speak at all. This, as we shall soon see, is apparent in the analyses of Siegel and Lipman, for both see the consequences of the idea of critical thinking extending to education across the disciplines.

The postmodern challenge, as represented by the diversity of disciplinary practices, is directly relevant to critical thinking's day to day endeavors. Critical thinking advocates must speak to each discipline's particular methods and objectives, and so the differences across the fields becomes our stock in trade. The task for critical thinking is to develop an adequate theory that grounds a general strategy consistent with the diversity of the particulars of education in many fields, while sustaining a clear and identifiable core that sufficiently distinguishes critical thinking from other general perspectives, while offering guidance for practice unavailable elsewhere.

Postmodernism rests, however uneasily, on the various and deep anti-foundationalist positions that have becoming increasingly prominent in contemporary philosophical discussions. Anti-foundationalism calls into question the availability of a transcendental framework upon which inquiry can rest. In place of a unified justificatory framework, it sees the various intellectual pursuits as particular, even incommensurable. Diverse frameworks must, therefore, look to their own virtues as the grounds for their justification. This has been claimed for frameworks of all sorts.

Anti-foundationalism appears especially suited to contexts of moral and political deliberation, a view supported by theorists as varied as Gadamer and MacIntyre; Derreda and Rorty. But it is not limited to deliberation about values. Recent philosophy of science has been particularly important in setting the stage for anti-foundationalism, by showing that even within science, the most paradigmatically rational form of inquiry, an appeal to a foundation independent of the procedures of rational inquiry within particular scientific fields is difficult to reconcile with scientific practice and progress. The role of competing alternatives, rather than appeals to a unifying justificatory frame has taken the center stage in the discussion of scientific rationality. Major voices such as Popper, Feyerabend, Kuhn, Lakatos, and Laudan, whatever their disagreements about the particulars, point to the essential role of competing views in scientific deliberation.

Diversity, or even fragmentation, need not, however, lead to anarchy or incoherence. An attempt to construct a sense of rationality appropriate to a conceptual universe of competing frameworks is at the heart of the work of Jurgen Habermas. Concerned with both social and scientific deliberation, Habermas sees rationality grounded in "communicative action," a requirement of "socially coordinated action" basic for the survival of the species (Habermas, 1981, p. 397). Such coordination, within the context of "practical reason," is the "interlacing of egocentric calculations of utility ... as a socially integrating consensus about norms and values instilled through cultural tradition and socialization" (ibid., p. 101). Communicative action is based on shared notions of validity, but as Thomas McCarthy summarizes in his introduction to *The Theory of Communicative Action:* "The key to (Habermas') notion of reaching understanding is the possibility of using reasons or grounds to gain intersubjective recognition for criticizable validity claims ... That is, that in each of these dimensions (theoretic, practical and aesthetic) it is possible to reach agreement about disputed claims by way of argument and insight and without recourse to force other that of reasons and grounds" (ibid., pp. x-xi). Such argumentation is not, however, isolated from the "lifeworld" of the participants, that is, "the world-concepts and validity claims...presupposed as unproblematic" (ibid., p. 70). The lifeworld generates a set of concepts and principles of validation which constitutes the store of "interpretative work of preceding generations against which critical rationality strives" (ibid., p. 70). The lifeworld permits rational communication, but limits it as well, since, "The more cultural traditions predecide which validity claims, when, where, for what, from whom, and to whom, must be accepted, the less the participants themselves have the possibility of making explicit and examining the potential grounds on which their yes/no positions are based" (ibid., pp. 70-71). Thus, critical rationality is concerned with the cultural and historical variability of lifeworld structures. This variability is not, however, irreducible; it requires reduction to defensible principles of validation through communicative action and rational dialogue (ibid., Chapter 1:2), and takes as its rational limit the "ideal speech situation" in which there is "unrestricted discussion," "unimpaired self-representation," and "full complementation of understanding" (Habermas, 1970, pps. 368-70).[5]

Although critical thinking theorists have not made an explicit connection between their work and the work of Habermas, there are fruitful connections to be explored.[6] One finds an overlap of concerns within the two projects. At the deepest level, both see the centrality of reasonableness, more particularly, they both maintain the central role of dialogue. Both views appeal to some of the same theories of argumentation, especially informal logic.

The relationship between rational deliberation, as developed by Habermas, and critical thinking as recently elaborated, is evident from the definitions of critical thinking put forward, and from critical thinking's emphasis on dialogue as the basis for practice, and "dialectical" practice as the vehicle through which rationality evolves (Paul, 1990). Harvey Siegel, for example, seeing critical thinking as being "appropriately moved by reasons" (Siegel, 1988. pp. 32ff.), sees reasons themselves as reflecting "a tradition at a time." But traditions evolve, and as they do, "so do the principles which define and assess reasons. So what counts as a good reason in a tradition may change over time" (ibid., p. 135). Notice, relating good reasons to evolving traditions does not entail relativism, since principles which determine the compellingness of reasons at a time apply to all putative reasons impartially and universally (ibid., p. 135).

Whatever else is involved, postmodernism points to the wide variety of justificatory frames identifiable in contemporary inquiry, the range of cultural standpoints today, and the waxing and waning of dominant views throughout intellectual history. It is, however, more than the mere variety of frames that supports postmodernist intuitions. Frames, when subjected to critical analysis, are seen to be socially embedded in the sense that they reflect particular interests and characteristic limitations. These are frequently unavailable for rational critique in the frames within which they occur.

The diversity of frames, need not role out the possibility of rationality, for it does not imply relativism, and so, leaves open the possibility of reasonable discourse. For the variety of frames does not imply their equal validity. As Harvey Siegel has pointed out, no amount of de facto variability in whatever sense, supports the claim that rational assertion is free of the requirement of justifying reasons (Siegel, 1987). Nor does variety support a claim that no frames suitable to assess other frames are available (Toulmin, 1972).

The relation between reason and ongoing comparative deliberation is deeply rooted in the assessment of alternative frames is linked to an underlying practice of giving and assessing reasons (Siegel, 1987, for example pp. 9-10; pp. 43-44), but competing alternative points of view need not imply relativism. Siegel has offered a power anti-relativist argument, that traces the limits of relativism, offering a pluralist and fallibilist theory of reason that "incorporates the strength of newly articulated relativist positions" (op. cit., p. xiii.).[7] His analysis shows the "incoherence" of

relativism (ibid, chapter 1), and demonstrates its "impotence," its inability to "sanction significant judgments" (ibid. p. 20). Siegel's work traces the limits of relativism. If it is to be coherent, it must stop short of full generality. What is left is the possibility of rational discourse, although no discourse frame is immune from challenge as inquiry advances (ibid., especially chapter 8). What counts as good reasons is always determined within a framework that furnishes the norms to be applied. But frames are not absolute, frames can be evaluated from other standpoints.

The concern with the totality of validating principles and the frames that they reflect include concern with frameworks drawn from outside disciplinary settings: what Habermas calls the "life-world." Habermas' concern with the life-world is echoed in critical thinking's concern with, in Richard Paul's terms, "background logic," the "foundational concepts, assumptions, values, purposes, experiences, implications, and consequences" that form the background of all thinking (Paul, 1990, p. 70). This includes what one "unconsciously absorbs, for example, in the socialization process," as well as the logic of "natural language" (ibid, p. 78). It prompts the need for educators to be concerned with students' "personal experience" and to relate school learning to "everyday situations," to see learning as a "public, communal, dialogical and dialectical process" (ibid. pp. 27-8).

Paul's discussions, thus, address the other side of the postmodern challenge, that is, the claim that no particular reference frame is free of embedded interests and immune to charges of parochialism or other biasing elements. At the core of his position is the notion of "strong sense" critical thinking. (Paul, 1982, reprinted in Paul 1990 as chapter 26). Paul distinguished "strong sense" critical thinkers who can apply reasoning skills "in precisely those areas where they are most likely to have egocentric and sociocentric biases" (ibid., p. 374), from "weak sense" critical thinkers who "use critical conceptions and techniques to maintain their most deep-seated prejudices and irrational habits of thought by making them appear more rational" (ibid., p. 370; see also, pp. 28-29; p. 32; pp. 55ff; pp. 64-67; pp. 108ff.; pp. 193-194). The distinction rested on an analysis of "world views," sets of "beliefs, assumptions, and inferences" that reflect particular interests, stakes, and perceptions (ibid., pp. 372-374; also, pp. 73-74; p. 110; pp. 114-118; pp. 151ff.). Paul saw all thinking as initially conditioned by such world views, and critical thinking, in his preferred strong sense, as the means to combat their influence. This task, the identification and critique of world views, was equated with the "ancient Socratic model of the learner as a systematic, probing questioner and dialectical reasoner striving to live a reflective and rational life" (ibid., pp. 18-19; see also, p. 2; pp. 113-114; pp. 251ff; and chapter 19).

Paul's notion of critical thinking indicates the domain for which critical thinking was needed and within which critical thinking should be taught. The domain was constituted by what became increasingly known in the field as "everyday" issues or problems, "political, social, and personal issues

which most concern us and students" (ibid., p. 374; and see, chapter 5; chapter 30; and chapter 33). He offered as examples of the sorts problems he had in mind: "abortion, nuclear energy, nuclear arms, the nature of national security, poverty, social injustices of various kinds, revolution and intervention, socialized medicine, government regulation, sexism, racism, problems of love and friendship, jealousy, rights to private property, rights to world resources, faith and intuition versus reason, and so forth" (ibid., p. 374).[8]

What critical thinking that is adequate to the postmodern challenge must do is admit all putative reference frames into the dialogue, particularly those that afford a principled critique of whatever framework the critical thinker espouses. That is, critical thinking must be neutral as to the particulars, even when exemplifying some particular choice of validating frameworks. For some framework is required whenever support is called for, but none is beyond the possibility of critique. This is the core of the "critical spirit," often cited in the critical thinking literature, what Lipman calls "self-correction:" the on going practice of rational discourse that permits the process, the conceptual frame, and the participating individuals to move forward towards the attainment of theoretic and practical goals.

Such theoretic discussions support the possibility of critical thinking as, in Siegel's terms, "the educational cognate" of rationality (Siegel, 1988, p. 127). They do not, however, support its desirability, or offer an account of its nature. In light of our discussion, arguments that support the desirability of critical thinking must be ethically compelling, and include a notion of critical thinking that is open-textured enough to permit its application to the wide range of frameworks employed in support of reasonable discourse and understanding. It is to two such accounts that we now turn.

2. Critical thinking and the ethics of education

Harvey Siegel has offered the most detailed defense of critical thinking as an educational ideal available in the current literature (Siegel, 1988). The justification for critical thinking that Siegel offers reflects points made by others in the field, but does so with a depth and breadth that is a welcome addition to the literature. Siegel sees critical thinking as resting on the respect for persons in the sense of Kant: "The Kantian principle of respect for persons requires that we treat students in a certain manner - one which honors students' demand for reasons and explanations, deals with students honestly, and recognizes the need to confront students' independent judgment" (ibid., p. 56). Siegel includes three other justifying considerations: (intellectual) self-sufficiency and preparation for adulthood; initiation into the rational traditions, and the demands on education that result from the requirements for an educated citizenry living in a democracy. Although, he includes all of these in has account, he seems to take the Kantian requirement as most central, reflecting its foundational character (see, for example, ibid., p. 71).

The last three justifying considerations that Siegel enumerates lend immediacy to the fundamental justification. But first a word about the core intuition. Siegel's Kantian appeal speaks to perennial philosophical intuitions about what makes persons the appropriate object of moral concern, that is, their rationality. But, that is not the only version of the moral relevance of persons. Utilitarian and aristotelian analyses support additional concerns. The more pragmatic objective of using education to better individual lives is central to utilitarianism, and education as socialization, invitation into the polis, is at the heart of aristotelian conceptions. These underlying moral focuses create tensions within the educational enterprise. Incompatabilities between strategies brought forward in the name of these outcomes frequently require hard choices, choices that are often underdetermined by available theoretic and empirical evidence. This is reflected in current disputes relevant to educational reform through critical thinking theory and practice.[9]

Despite tensions between Kantian and other fundamental intuitions, Siegel's appeal to reason as the key attribute of persons reinforces currents in contemporary educational reform that speak to more broadly utilitarian objectives, including political participation in democratic communities. This becomes clear as we move on to the other justifying considerations.

Intellectual autonomy is of value in itself, but it also, given an empirical assumption, may be seen as instrumental for learning crucial within the knowledge environment into which students are to enter after graduation. Recent educational reformers, both progressive and conservative, are increasingly willing to characterize the information environment of the post-industrial era, as being subject to increasingly rapid and unforseeable change.[10]

This position when conjoined with the emphasis on rational comprehension characteristic of many critical thinking advocates requires an empirical assumption that sees particular items of school learning serving as prototypes for analogous learning only when students are helped to see what is learned through understanding, rather than through, for example, mere recall. Although there is little empirical research on the condition of transfer from particular educational contexts to indefinitely varied settings, what little research there is seems to support the view that principled instruction with a focus on general procedures and underlying concepts is required to support students' ability to transfer learned procedures to new contexts, except perhaps for students who are particularly gifted (See Perkins, 1990).[11]

Although recent attempts to clarify the situation are welcome, and further analysis is to the point, the issue seems to be ultimately an empirical one. Research is required to determine to what extent various curricular proposals and their underlying theories yield an analysis and practice that will result in improvement of students' thinking generally and in particular subject domains as well. If understanding in the sense operationalized by particular critical thinking approaches are not found to further appropriate

instructional aims, then the call for understanding as a fundamental educational goal must be justified without recourse to the achievement of practical ends, and the goal of understanding must be weighed as a desirable end against the goal of learning in some more traditional sense.

If intellectual autonomy, as I construe it, leads to an agenda consistent with pragmatic, economics-driven goals, initiating students into the rational traditions reinforces a deeply conservative intuition that requires that education reflect what has been learned about learning as typified by the major intellectual traditions encapsulated in the special disciplines. Despite the postmodern predicament, serious thought is still ordered by professional and intellectual arrangements that reflect the previous history of inquiry in particular fields, that is, inquiry in the special disciplines.[12] It is only the most foolhardy critical thinking advocate who would deny the role of the traditional disciplines as a major determinant of the content and practice of education.

This considerations just put forward echoes the situation in respect of participation in democracy. The familiar claim that education is a necessary support of democratic government, playing the essential role of preparing citizens for participation in democratic political processes, does not speak to the particulars (Gutman, 1989). The apparent relation between critical thinking and participation in democracy has, however, been reinforced by the analysis of multi-logical issues, mentioned above. Since such issues are internally complex, they demand that a variety of disciplinary and extra-disciplinary points of view be brought to bear in their articulation and resolution. Multi-logical issues, as we have seen, constitute a domain within which critical thinking is essential, since they transcend the limited perspectives of any given discipline and require the ability to synthesize and apply a variety of kinds of information and principles (See Paul, 1990, as cited above, and, for example, Weddle, 1984). Multi-logical issues are clearly involved in most real political and social disputes, and so critical thinking, striving to help students to apply many frames of reference in order to articulate, understand, and resolve such issues, may be seen as having an essential role in educating competent citizens.[13]

Siegel's four grounds have consequences for education that accepts the critical thinking ideals. The first is that students must be brought to rational acceptance of the information that they learn. The second requires that students see through the details of whatever they learn, to principles that can be applied in new learning situations. Third, education must help students to see the rational grounds of the disciplines that they study, and are to be helped to participate in the discourse of the various fields. And last, education must help students to make reasoned judgments about the complex, multi-logical issues that characterize the concerns of contemporary democratic societies.

3. Critical thinking and its underlying theory

As is apparent from the discussion so far, critical thinking is a far-ranging ideal that speaks to the entire range of educational concerns, and addresses the particulars of disciplinary knowledge that constitute the content of instruction. As such, critical thinking advocates must transcend their own disciplinary perspectives and reach out to the variety of special knowledge that comprises the information and skill basis of education in general.

Such a broad arena of concern is available to critical thinking, if only because the term itself, a honorific used to denote a high level of competence, denotes a common objective of the various disciplines themselves. Although critical thinking is bracketed in the various disciplines, having little overt content, it is a goal that most instructors in whatever discipline can aspire to. Critical thinking, in the sense to be outlined immediately below, draws upon the best in disciplinary practice in order to warrant the epistemological and other normative claims that are implicit in a discipline's claim to adequacy. We now turn to an analysis of critical thinking adequate to this formidable task.

Matthew Lipman has contributed to the Institute for Critical Thinking's project of implementing critical thinking across the disciplines by constructing an analysis of critical thinking that includes a differentiable core, exhibiting the general nature of critical thinking, yet permitting particularization adequate to the demands of applying critical thinking within the various disciplines. His analysis sees critical thinking as: "skillful, responsible thinking that facilitates good judgment because it (a) relies upon criteria, (b) is self-correcting, and (c) is sensitive to context" (Lipman, 1988, p. 3). Each component serves as an indicator of the direction in which critical thinking must go, and in doing so points to the relevance of this conception of critical thinking to current educational concerns. We will explore the components of his account point by point.

Why skillful and responsible? The requirement that critical thinking be skillful thinking connects it with epistemological and other normatively relevant considerations of practice. Skillfulness points to the fact that critical thinking is embedded in contexts that furnish reliable information and warranted methodology. Critical thinking is not indifferent to the norms of the various fields, rather it looks to appropriate practice for the standards that have proved useful so far in supporting warranted inquiry of all sorts, and for the most reliable information from which inquiry draws its relevance and strength.

Responsible thinking points to the relationship between the critical thinker and the community that she addresses. The critical thinker sees an obligation to present reasons in light of acceptable standards, or to challenge such standards by relevant and persuasive argument. Such reasons are subject to the judgment of competent members of fields relevant to the issues involved, and the critical thinker is obliged to address such members and reflect upon their judgments when making claims and presenting arguments and analyses.

Why judgment? Through the focus on judgment, critical thinking is seen as directed towards non-routine thinking, thinking that can not be adequately based on algorithms or other mechanical procedures. It is called for in those situations in which considerations must be weighed and alternatives assessed, situations that call for the assessment of priorities and determinations of truth and relevance.

Why criteria? Lipman merely offers a sketch of the reasoning behind the choice of criteria as a central aspect of his account. He does, however, indicate a number of suggestive directions in which a more elaborate account might be sought, and furnishes examples that are intended to indicate the role of criteria in making judgments. Criteria afford rational support for the thinking outcomes that require judgments: claims, decisions, determinations and the like. The examples of criteria that Lipman includes are: "standards; laws, by-laws, regulations, charters, canons, ordinances, guidelines and directions; precepts, requirements, specifications, stipulations, limits; conventions, norms, regularities, uniformities, covering generalizations; principles, presuppositions, ideals, purposes, aims, objectives; tests, credentials, experimental findings; methods, procedures, policies" (ibid., p. 4).

In developing the notion of criteria while working with my colleagues from many disciplines, I epitomize criteria as *decisive considerations supporting judgments*, considerations, which upon reflection, can be seen to structure the epistemological framework which helps to determine the status of claims, where truth is the issue, as well as other sorts of frameworks for legitimation were non-epistemic adequacy is the concern.[14]

An account that sees criteria as the underlying structure that supports the adequacy of claims is most readily constructed in contexts where argumentation is "stylized," that is where argumentation is characterized by identifiable norms, particular to a given tradition of inquiry. My own work has focused on the sciences, since I take the sciences to include clear instances of the most carefully articulated and socially monitored arguments available for analysis (Weinstein, 1990). In the sciences, the criteria brought forward as decisive considerations, reflect issues that distinguish the content and style of claims, and that support the particulars of arguments brought forward in challenge and support. These include logical/epistemological elements such as the relevance of evidence; the form and character of descriptions, the reliability of methods used in experiment and observation; and patterns of inference including mathematics. They also include considerations that, in contrast, can be seen as sociological/epistemological: decision procedures for peer review; the judgment of the field as expressed by citations in the literature; replications of experiments and other sorts of imitation; and acceptance as part of the received wisdom as evidenced by textbooks and what is taught to students learning the field.

I see an enumeration such as the one above, pointing to an account of argument that places balances of consideration as the most salient logical form for understanding argumentation within contexts of judgment relevant to critical thinking.[15] Logical inference, including mathematics and statistics, is not the center of an analysis that seeks to describe the macro-structure of argument. That is not to deny a role to logic and mathematics in argument. Logic plays an essential role in argument, governing the micro-structure of argumentation moves. but an analysis and the assessment of the adequacy of claims requires a wide variety of epistemological and other normative considerations, depending on the sort of claim asserted (Weinstein, 1990). Such an analysis identifies the interaction of various considerations as they play various and changing roles in the ongoing dialogue that constitutes the assessment procedures in a field. Whence, balance of considerations place an a fundamental role as the over-arching framework within which argumentation is to be seen.

The most crucial aspect of argument construction and assessment, in an account of the sort indicated here, are the range of considerations that constitute the criteria that are the basis upon which judgments rest. These criteria may include a wide variety of items. The ones mentioned above, relative to scientific claims, are not exhaustive of the possibilities, nor do they translate with equal relevance into criteria for arguments in discourse frames typical of the humanities, politics and the law. Critical thinking, nonetheless, points to the importance of analogous considerations for the reasonable assertion and evaluation of claims of all sorts. And by doing so, it indicates novel directions for educational practice, if students are to helped in becoming more aware of the considerations seen as decisive in their own thinking and the thinking of others within the various courses that they study.

The area that I have just indicated engages with one of the main theoretic pillars upon which current interest in critical thinking rests: informal logic. Although there is ample room for dispute about details, something very much like informal logic seems required if we are to articulate the hosts of interrelated considerations--both logical and rhetorical, that constitute actual argumentation that relies on balance of considerations rather than formal implications. Many different policies on the role and character of informal logic are represented by both the critical thinking literature and critical thinking practice. At the Institute for Critical Thinking we have developed a model for understanding argumentation across the disciplines that has proved successful as a framework for dialogues with colleagues from many of the fields represented in undergraduate education. Based on our practice, it appears that the model we offer is able to capture the underlying structure of argumentation in the many disciplines with which we have engaged. Our model employs Stephen Toulmin's analysis of argument structure that distinguishes levels of reasons, rather than the more typical informal logic accounts that limit themselves to the identification of premises and conclusion (Toulmin, 1969). This has been seen by many of our colleagues as a more adequate framework for distinguishing the

functional components of arguments in their field. In addition, it offers a structure that permits students to see information differentiated as to generality and robustness, and in addition, articulates the epistemological relations that offer support to claims in a field. Along with Toulmin's account, we include the work in argumentation theory of the Amsterdam school (Eemeren and Grootendorst, 1983). The latter, concerned with the speech acts that underlie argumentative discourse, addresses another central concern of informal logic: informal fallacies. Distinguishing functional stages defined in terms of the various speech acts appropriate to particular argument stages, fallacies are seen as failures of dialogue to conform to conditions that support that well-functioning of argument in terms of the objective of rational argumentation: that is, the evaluation of claims.[16]

What this complex model affords is a structure rich enough to capture the range of argumentation across the disciplines. It permits both epistemological and sociological aspects to be identified without setting a priori limits to the particulars, while sustaining a core of objectivity that supports the reasonable reconstruction and evaluation of arguments of all sorts.

If the notion of criteria is taken as an encapsulation of the underlying norms governing patterns of inquiry, including such things as: the range of considerations deemed relevant; the weights assigned to these; the logic and mathematics used; the form and range of acceptable descriptions; characteristic standards of probity; the nature and extent of theories; and social forms for the presentation, criticism and defense of positions, critical thinking is involved when these elements are severally weighted and assigned a place (whether tacit or overt) in the defense of a judgment.

What of context? The notion of context is a significant addition to the analysis of reasonable inquiry, especially when contrasted with most available accounts that limit themselves to the identification and application of principles, and so see coherence as the primary index of rationality. Lipman's conception affords an independent focus on the context within which principles apply, and thus adds relevance to coherence as a desiderata of critical thought. His own account does not, however, emphasize relevance. He offers, instead, examples of contextual factors that limit the application of principles to cases. These include: "exceptional or irregular circumstances ... special limitations ... contingencies and constraints ... overall configurations ... the possibility that evidence is atypical ... (and) the possibility that some meanings do not translate from one context or domain to another..." (op. cit., p. 8).

Although these are all examples of contextual factors relevant to the application of principles, there are two more fundamental roles that context plays in determining the reasonableness of arguments. The context of application determines the appropriateness of the criteria employed in supporting a judgment. In addition, it indicates the circumstances of the individuals involved in making judgments. The former is essential and

generally seen to be so, constituting standard accounts of relevance in informal logic (See for example, Johnson and Blair, 1983). The latter is more controversial, engaging the issue of the foundationalism in a particularly salient fashion. The postmodern critique sees the point of view of the thinker as essential, since it rejects the notion that any point of view is so fundamental as to be immune from critique. Thus, particular points of view determine factors that are clearly relevant to the adequacy of the judgment. Such factors include: the social perspective of the judge; the choice of theoretic frame; perspective-bounded determinations of the relevance of evidence, and the character of the over-all framework for adjudicating competing claims. One hallmark of the adequacy of critical thinking is its ability to identify and address such issues.

The ability to address issues that involve the standpoint of the critical thinker herself moves us in a direction relevant to postmodern and other socio-historical critiques of enlightenment based educational practice. It is no part of critical thinking that the critical thinker comes to the task without particular perspectives that materially affect her judgment. Critical thinking does demand, however, that such perspectives be identified and subjected to appraisal. The appraisal must itself be defensible in terms acceptable to critical thinking (Siegel, 1987). And if the basic insight that grounds the sense of the problematic in context-insensitive foundationalism is at all correct, such appraisals must reflect the abilities of the appraiser as judged within a relevant tradition; it must satisfy the demands of the community within which the appraisal is to be assessed. Critical thinking demands further, that challenges to and defense of a standpoint as appropriate to the task for which it is employed, must be grounded in appropriate criteria; applied in a context sensitive fashion; and be open to self-correction. This moves us in the direction of our concern, but is still open to the challenge that the framework within the appraisal is evaluated may still be so limited as to render the appraisal suspect.

Obviously, much more is needed if such a complex position is to be distinguished from similar views and responsively supported in the face of challenges. And more is available, as we have seen, if we connect critical thinking to the powerful theoretical analysis of Jurgen Habermas as indicated above. Self-correction is at the heart of critical thinking. Without it, critical thinking is indistinguishable for reasoned inquiry of the most conservative kind. Self-correction requires that the inquirer use the inquiry process reflexively, reflecting back upon itself as on ongoing critique of the procedures employed. Whatever the focus of an inquiry, the inquiry reflects back upon itself so as to expose aspects that require alteration in the name of perfecting the inquiry itself. This reflexivity is multi-faceted. The concepts used may be seen as lacking, criteria may have to be adjusted, the context may require reconsidering the weight assigned to elements, it may include atypical elements and point to novel considerations. But most importantly, the inquirer may find herself to be engaged in practices or making assumptions that limit the effectiveness of the inquiry. She may come to realize that her standpoint has materially affected the objectivity of

the inquiry, limiting her perspective or biasing her knowledge base and procedures.[17] If critical thinking is to meet the challenge of recent critiques, it must be grounded in a theory that speaks to the availability of radical alternatives within reasoned discourse, and perhaps, even to challenges to reasoned discourse itself. Such a theory is increasingly available. The task is to continue with its articulation, and to demonstrate its usefulness in areas of concern.

4. Final thoughts

Habermas' theory of communicative action goes far beyond critical thinking theories in many ways The most apparent is Habermas' concern with the historical and social grounding of communicative action and the role of discourse as exposing the repressed in socially constituted thought (Habermas, 1971, especially chapter 10). Although, as we have seen, some critical thinking theorists have expressed similar points of view, nowhere in critical thinking theory do we find the profound philosophical and sociological analysis that Habermas offers. There is, however, much in Habermas that should be considered by critical thinkers, particularly the role of discourse as a vehicle for exposing the unacknowledged problematic within contexts of inquiry (Habermas, 1987, VIII, 3). Factors repressed by society and cultural traditions that need to be brought to social awareness and subjected to rational critique, require self-correction on a grand scale.

Self-correction on such a grand scale demands a process that is both rationally acceptable and flexible enough to incorporate the most divergent frames of reference. The rational acceptability of Habermasian discourse is based upon his notion of a procedure of discourse that makes rational critique available. This is characterized in terms of the universal pragmatics that underlie discourse, that is the analysis of discourse that sees shared understanding as its objective. (Habermas, 1981, pp. 98ff.). Such shared understanding, is a presupposition of rational discourse and reflects the general thesis that linguistic competence is the outcome of a social process of participation (Habermas, 1987, pp. 22ff.).

Whatever the particulars, Habermas offers a theoretic base sorely needed by critical thinking. Critical thinking advocates have spent little time exploring the deep theoretical issues that their claims bring to the foreground. If critical thinking is to portray itself as defining a procedure for critique, general in respect of the disciplines, and adequate to the range of contexts that mass education requires, some general account of reasoned dialogue needs to be put forward. The recent debates that form the postmodernist concern raise challenges to objectivity and the possibility of rational discourse that requires a deeply theoretical and far reaching response from critical thinking advocates, if any plausible response is to be offered at all.

This is of immediate relevance to education in general and to education for development. Education has, all too often, relied on the authority of

expert points of view. Reform through critical thinking questions the value of such an educational stance, even where authority is rationally warranted. Critical thinking requires that students comprehend the rational basis upon which warranted authority rests and be helped to apply their understandings to the wide range of judgments that they may be called to make as fully participating members of a society. This is an even greater problem in education that seeks to support development by practices imported from developed to developing countries. The authority of expertise, inadequate for education in any event, is often too readily confounded with ethnocentrism, racism, and the interests of the developed country. If development is to continue to draw upon the results of specialists' inquiry, and thus introduce rational traditions that may be alien to the social and cultural context within which they are to be employed, these results must be supported by educational practices that foster understanding of the relevant modes of inquiry, replacing authority of source with critical judgment.

Such a deepening of understanding is necessary, but it is not sufficient. More is needed than the internalization of the norms that govern judgment in the special disciplines. If the sophisticated understanding of specialists is to be viewed through the lens of cultural needs and local appreciations, education must include both the interrogation of the practices of specialists by those in the community, and the self-reflection of the communities that the specialists attempt to serve. Critical thinking must reflect the life-world of those who seek to employ it, and thus, critical thinking must embrace the structures that underlie values and culture. This task requires historical and social analyses, and an epistemology of discourse frames; it requires an understanding of the social construction of thought and the vehicles through which constructs are presented to others.

Lipman's account of critical thinking points to a conception that is broad enough to serve as a framework for such an inquiry. It is consistent with both the postmodernist insight into particularity, and with the foundationalist requirement of objectively defensible critical standpoints. Unlike other foundationalist accounts, Lipman's makes no claims about the particulars the govern modes of inquiry, and so critical thinking remains open to whatever details of reasoning individual discourse frames employ. But although indifferent to the details, the account places limits on what can count as critical thinking within a discipline. For to be critical, inquiry must satisfy the constraints enumerated in his analysis. That is, critical thinking within a justificatory framework, and most relevantly within the special disciplines, must appeal to a tradition of successful practice (skillfulness), it must address the community of competent inquirers (responsibility), it must be based on acceptable principles (criteria) in a fashion that takes into account the details that the particular issues involve (sensitivity to context), and must be reflexive in a fashion that supports progressive change (self-correction).

Those who would either question or support the form of inquiry from within the life-world are similarly obliged. Their social and cultural context

must itself be thematized as well, made an object of dialogue and rational scrutiny. The competence of participants must be ascertained, the domain of responsible co-inquirers must be specified. The often tacit criteria that constitute social and cultural understanding must be brought to the fore. The context, typically changing, must be considered. And some sense of the progressive, of the direction of self-correction, must be negotiated and deployed. Thus, the postmodern insight that sees inquiry situated within historically and socially constituted traditions of inquiry is retained, while the enlightenment requirement that an objective procedure for evaluating any claim is satisfied by the constraints placed on all inquiry whatsoever.

Endnotes

[1] To cite just one of such programs, Philosophy for Children has proven effective as a vehicle for critical thinking in thousands of elementary schools in the United States and many other countries representative of widely varying societies throughout the world (Lipman et. al, 1988).

[2] See Weinstein and Oxman-Michelli (1989) for a overview of the Institute and its faculty development efforts. For the teacher education program, see Michelli (1992).

[3] The concept of multi-logical issues is at the center of the work of Richard Paul, reprinted, almost in its entirety, in Paul (1990).

[4] See Perry (1968) for an account of the vicissitudes of typical student responses to the variety of disciplinary perspectives that undergraduate education includes.

[5] The wealth of issues raised by the role of the "life world" in validating judgements can only be touched on here. Yet, they must be addressed, if only to defend my discussion against a charge of advocating the "praxis of the dominant elites" (Freire, 1989, p. 120). Clearly, my focus on post-secondary education is elitist, in that such education is rarely available to all. Still, post-secondary education includes much of what is needed for participation in increasingly sophisticated social contexts. On my reading, Freire is less concerned with the sophistication of the teachers, he after all, calls for many specialists to join in his program of identifying the "themes" which are at the center of his educational practice (ibid., chapter 3). His concern seems less with the authority of those that teach, and more with the limits placed on the role that such authority should play. Critical thinking includes interactive dialogue, the core of Freire's recommendation. In addition, it seeks to advance understanding, and the "ownership" of the best reasons appropriate to a task. These, as both Freire and critical thinkers insist, need to be negotiated through dialogue. This need not require that informed and educated understanding be excluded from the education of the masses.

What must, however, be confronted by any perspective that focuses on post-secondary education is the sense that university faculty, just as any other group, speak from a standpoint that characterizes its members. Such a standpoint includes a commitment to rational dialogue within particular traditions and, typically, liberal tending political views. This is frequently significantly different from the standpoints of both the students that they serve and the community that relies on them for the education of the new generation of professionals. Thus, post-secondary education exacerbates the problem of distance that plagues any attempt to introduce expert-driven educational practices into societies at large.

An attempt to indicate the relevance of Habermas' work to education is found in Young (1990).

[6] There is apparent divergence as to the role of developmentalism in the characterization of reasoning through dialogue. Habermas cites Kohlberg and other developmentalists in many places (See, for example, Habermas, 1981, pp. 174ff.), while many critical thinking advocates have eschewed developmentalism (Lipman, 1980, pp. 153-154; Weinstein, 1988a).

Critical thinking complaints against developmentalism seem best lodged against logical and moral development. Social development, development in the ability to function within a rational community as an interlocutor (Selman, 1980) and descriptions of typical courses of development in student learning strategies, (Perry, 1968) seem more to the point. Students faced with cognitive dissonance as they progress through their learning environments, reduce their learning experience to the essentials: identifying teacher demands and attempting to fulfill them. (See, Oxman, 1989 for a brief review.) Different styles of teaching, widely varying tasks, and a fundamental inability to meaningfully question the authority of teacher, text, and task, appear to create uniformity in response as students process education. Harvard undergraduates come to their experience seeking the most salient commonality found so far: authority (Perry, 1968). But whatever the varieties in primary and secondary schooling, the undergraduate experience of U.S. undergraduates includes a welter of disciplinary perspectives and teaching styles. The only demands commonly placed upon U.S. professors, expertise and enthusiasm, have permitted a thousand flowers to grow, professors ranging across the landscape of learning, medievals to sixties-folk, in both manner and substance.

How does Perry see college students responding to the bazaar of educational perspectives that they encounter: failing authority, anything goes; variety is seen to be endemic and relativism of varying stripes appears. ('Relativism' seems too refined a term for what occurs. Better, perhaps, is the learned disregard of foundational issues and other incongruities of the learning environment, in the name of the management of academic tasks, that is, the rejection of critical reason for technical reasoning of a particularly superficial kind.) Perry chronicles students' slow march from seeing education in terms of the routine fulfillment of "course-work requirements," to coming to appreciate the role of reasoned understanding and a commitment to rational traditions. It is such a path that critical thinking seeks to make smoother.

[7] The argument is a careful restatement of Plato's classic anti-relativist argument in the Theatetus, systematically applied to modern relativist positions. See Weinstein 1992, for a detailed discussion.

[8] Paul is not alone in his concern for everyday experience. The "life world" is the apparent focus of the overwhelming majority of the texts in the field. Whether critical thinking or informal logic texts, the focus is on "real

world," "everyday" problems in terms of "ordinary" or "natural" argumentation. (See Ennis, 1987, where the connection between critical thinking and informal logic is apparent form the identity of the elements put forward is his enumeration of the particulars of critical thinking and the standard content of informal logic texts).

[9] I will not be able to elaborate this point in any detail. But here are a few indications of the tensions. Utilitarian considerations point to the role of education in increasing the common good by enabling students to take their place in the social and economic structure of the society within which they are to live their lives. Although critical thinking advocates assume that education that addresses students' rationality will further their ability to participate as productive members of society, it remains to be seen whether it will in fact increase students' competence in requisite ways. Similarly for initiation into the polis. In a democratic society critical thinking seems to afford the abilities most valued in political decision making. But this too awaits confirmation as critical thinking programs expand and yield a population of students educated in accord with critical thinking ideals and using critical thinking strategies. Another tension, internal to the heir of the Kantian tradition that sees logical structures as underlying schema, is the result of the most recent of the Kantian perspectives in psychology, that is, the work of Piaget. If Piaget is right in claiming that logical competence is not uniformly available to all students at all times, critical thinking must be modified in light of developmental considerations. Obviously, this is not an issue in undergraduate education where all students are possibly formal operational. See Perry (1968), cited earlier, for related developmental concerns and Weinstein (1988) for an extended discussion of the issues as related to moral education.

[10] An early statement of this claim is found in the influential and popular *Third Wave* by Toffler (Toffler, 1980). The catch phrase "learning to learn," indicates a common response to the problem that the rapidly changing information environment creates for educators. Learning to learn requires that students see the particulars of what they study in school as indicators of what they are most likely to need to learn in the future. The value of school subjects is found less in the particulars presented and more in the various styles of information and information processing that particulars reflect. Individual items, whether facts or procedures, need to be seen as exemplifications of particular *kinds* of learning. Thus, mechanical learning of whatever sort is beside the point.

[11] The discussion in the body of the text is a gloss in one of the central issues in critical thinking today: the problem of domain specificity. Both conceptual and empirical arguments have been put forward supporting or attacking the adequacy of critical thinking (and informal logic) skills to the task of understanding the range of school learning. None of these have managed to convince all members of the field. A number of recent articles, have begun the task of examining the literature prompted by McPeck's

challenge to the critical thinking movements claim to have identified generalizable skills (McPeck, 1981). See, for example Andrews (1990); Blatz (1989), Brell (1990). A typical account from an influential critical thinking advocate is Ennis (1989). What the literature indicates at this point is that there are plausible candidates for general skills, and that the sorts of skills indicated reflect different theoretic assumptions, informal logicians offering one sort of account, cognitive psychologists another. What the literature has still not adequately addressed is the saliency of the general thinking skills, analyzed at the level at which their generality is apparent, for critical thinking within the disciplines. That is, the literature has not explored to what extent general thinking skills need to be differentiated if they are to be useful within particular settings.

[12] The issue of rational traditions recalls attempts to base education on an analysis of the conceptual frames of the various disciplines (Hirst, 1965). Many of these attempts have foundered on the difficulty of distinguishing disciplines in some principled fashion (Phillips, 1971), yet the basic insight that the disciplines are methodologically distinguishable seems credible on its face. The courses taught in various academic departments are sufficiently different to require distinct cognitive operations and to involve distinctive student tasks. This is particularly clear in more advanced studies where competence in some field is usually independent of competence in others. The details involved in competent performance in undergraduate courses are as different as analyzing a poem in contrast to analyzing a chemical compound; employing the apparatus of calculus to draw inferences as opposed to supporting a philosophical analysis through the tracing of conceptual connections.

[13] Here, as in the preceding points, there is an underlying dispute. Is the education of citizens primarily socialization into particular norms and practices, or does it require the development of critical thinking and autonomous judgment? These need not conflict, but they may, and thereby create a tension that must be resolved by weighing the value alternatives and making hard decisions (Weinstein, 1988). I have offered a more detailed discussion of the relationship between critical thinking and education for democracy in Weinstein (1991).

[14] Lipman cites Slote (1966) and Scriven (1959) as relevant to his use of the concept of criteria. In addition, see Rescher (1982) for an account that links the issue of criteria to that of truth. Rescher's effort adds a feature that is useful if we are to understand the notion of criteria as central to critical thinking. Criteria do not furnish definitions, rather they point to the operant considerations that underlie the application of a concept within a practice (ibid. pp. 1-4). Similarly, criteria within critical thinking do not suffice for the correctness of a judgment (its truth, perhaps), rather they determine the adequacy of a judgment relative to relevant standards, standards that characterize the discourse frame and the discourse community within which they are made. This should not be seen as limiting the assessment of claims to the discourse frame within which they are made. For claims and their

supporting reasons can be viewed from a variety of frames (Toulmin, 1972). Rather, the centrality of criteria requires that assessments reflect some frame or other (Siegel, 1987). Judgments require reasons, and what counts as good reasons is always determined within a framework that furnishes the norms to be applied. But frames are not absolute, frames can be evaluated from other standpoints. Evaluation, however, is always relative to some frame or other. For it is the frame that furnishes the elements available to offer rational support, and it is these elements that criteria reflect.

[15] For a recent account of arguments that rely on balances of consideration, see, Govier (1987).

[16] The analysis offered by the Amsterdam school characterizes argument in terms of four stages: opening stage, confrontation stage, argumentation stage and closing stage (Eemeren and Grootendorst, 1983). The opening stage involves the presentation of the issue for debate; the confrontation stage sets the framework of evaluation that determines various sorts of adequacy; the argument stage is the argument itself; and the closing stage involves considerations of final assessment that determine the status of the claims argued so far. It should be noted that in actual arguments these stages are in frequently in different order and as frequently overlap. In addition, much of what is involved in actual argumentation is implicit, especially aspects of the confrontation stage (Weinstein, 1990). The conditions for the adequacy of argumentation in a field are generally accepted and are rarely explicitly negotiated in particular exchanges. Naturally, these are always open to renegotiation, and are frequently rethought as argumentation progresses.

[17] Self-correction plays an essential role in students' critical thinking, even where they are not competent judges of the criteria that they are given by teachers and taught to apply. They may use critical thinking strategies to identify and assess their own thinking processes when applying principles and procedures that they must accept on authority.

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